Fermilab

FY09 Tactical Plan for Scientific Computing/System Administration
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Relevant Strategic Plans - Scientific Facilities, Computing Division, Grids, Run II Computing

System Administration Goal
- Support scientific computing at Fermilab by providing server, compute node, storage, and desktop management. Constantly strive to improve operational efficiency while maintaining a high level of customer satisfaction.

System Administration Strategy
- "Provide excellent, secure and where necessary, innovative computing solutions to support the scientific program of the lab."
- "Appropriate and close relationships with the scientific organizations."
- "Willingness to determine a good balance between self-integration and procured systems."
- "Use of common tools and processes whenever possible, including alignment within the organization and with lab and industry directions."
- "Proper attention to aspects of the proper operation of large facilities, for example, backups and security."

FY08 Accomplishments
- Move production farms (D0/CDF) to offline analysis clusters.
- Complete assimilation of machines brought into FEF during last CD reorg.
- Work with FermiGrid services to streamline Grid related software deployments.

Not Accomplished in FY08
- Reduce number of 24x7 (single points of failure) for all experiments through virtualization.
- Migrate D0 CAB cluster administration responsibilities to FermiGrid services.

Objectives for FY09
1. Maintain existing scientific computing infrastructure for running Fermilab experiments. Scope includes system management, procurement of new systems, retiring old equipment, and troubleshooting technical issues.
2. Improve system administration efficiency by streamlining procedures and refining existing system management infrastructure.
3. Implement virtualization technologies in an effort to consolidate physical systems and increase operational reliability.
4. Improve system monitoring and operational metrics.
5. Increase technical proficiency of department members.
6. Collaborate with other departments to share technical expertise and standardize system administration tools/procedures.
7. Promote a safe and harmonious work environment.
8. Embrace ITIL.

Project Activities

System Administration/Short Term Projects
Activity type: New Project
Description: Improve compute node management efficiency.
Timescale: Start Qtr 4 2008; Complete Qtr 2 2009
Metrics: FTEs reported by effort reporting.

System Administration/Short Term Projects
Activity type: New Project
Description: Take over management of EAG servers.
Timescale: Start Qtr 4 2008; Complete Qtr 1 2009
Metrics: Number of related incidents reported for 30 days after deployment. Number of systems.

System Administration/Short Term Projects
Activity type: New Project
Description: Deploy alternative to NGOP for system monitoring.
Timescale: Start Qtr 1 2009; Complete Qtr 3 2009
Metrics: Number of incidents reported by Zabbix

System Administration/Short Term Projects
Activity type: New Project
Description: Upgrade and migrate CAB status web pages.
Timescale: Start Aug 08; Complete Qtr 1 2009
Metrics: Number of web server page views. Customer satisfaction.

System Administration/Short Term Projects
Activity type: New Project
Description: Revamp system console and remote power-cycling infrastructure.
Timescale: Start Oct 08; Complete Qtr 1 2009
Metrics: Number of systems that can be reached via serial console and remotely power-cycled.

Service Activities

System Administration/Compute Server Management
Activity type: Service
Description: Maintain and support compute node hardware and operating system.
Timescale: Continuous
Metrics: Number of compute servers managed, upgraded, and installed.

System Administration/Server Management
Activity type: Service
Description: Maintain and support server hardware and operating system.
Timescale: Continuous
Metrics: Number of servers managed, upgraded, and installed.

System Administration/Storage Management
Activity type: Service
Description: Maintain and support storage hardware.
Timescale: Continuous
Metrics: Volume of storage managed. Number of storage units.

System Administration/Desktop Computer Management
Activity type: Service
Description: Maintain and support desktop computer hardware and operating system.
Timescale: Continuous
Metrics: Number of desktop related helpdesk tickets. Number of desktop systems managed.

System Administration/Batch System Management
Activity type: Service
Description: Maintain and support Torque batch system software.
Timescale: Continuous
Metrics: Number of reported batch system related helpdesk tickets. Number of job slots on batch system.

System Administration/Event and Incident Management
Activity type: Service
Description: Resolve service interruptions, helpdesk tickets, and respond to customer support requests.
Timescale: Continuous
Metrics: Average time to resolve helpdesk tickets, number of helpdesk tickets.

System Administration/Problem Management
Activity type: Service
Description: Perform incident root cause analysis with the goal of reducing service interruptions.
Timescale: Continuous
Metrics: Number of problems resolved.

System Administration/Operational Planning and Consulting Support
Activity type: Service
Description: Help customers design and maintain scientific computing architectures.
Timescale: Continuous
Metrics: ---

Procurement Support
Activity type: Service
Description: Submit requisitions for scientific computing hardware, services, and support contracts. Assist customers with annual budget.
Timescale: Continuous
Metrics: Total dollar amount of approved requisitions.

System Administration/Professional Development
Activity type: Service

Description: Misc activities dedicated to the improvement of employee technical skill and knowledge.
Timescale: Continuous
Metrics: ---

System Administration/System Administration Management
Activity type: Service
Description: Line management, change management, service level management
Timescale: Continuous
Metrics: ---

Priorities
1. Maintain existing scientific computing infrastructure for running Fermilab experiments.
2. Improve system administration efficiency.
3. Implement virtualization technologies.
4. Increase technical proficiency of department members.

Staffing Issues
Staffing levels are currently adequate to meet our objectives.

Change control
Changes to the tactical plan require the approval of the Fermilab Experiments Facilities Department Head.

Risk Assessment
- Reduction in available effort due to resignations, budget shortfalls, or reassignments.
- Increased number of requests from customers because of reduced support from scientific staff. This could be a particular problem with D0/CDF as RunII starts to wind down.
- Unanticipated effort required to move equipment due to power and cooling constraints in FCC.